MODEL
1250

Majestic
"MIGHTY MONARCH OF THE AIR"

12 TUBE
5 BAND RADIO

INSTRUCTION MANUAL

INSTALLATION

SHIPPING BOLTS

Underneath the shelf which holds the radio in the console model are two bolts with red nuts which are used for shipping purposes only. Remove the bolts so that the radio is floating freely on its rubber supports.

AERIAL AND GROUND

For best results an outdoor antenna, approximately sixty feet long including the lead in wire, should be used. An inside antenna will prove satisfactory in large cities provided it is not installed in a building of steel construction. In all cases, however, the receiver will perform better when an outdoor antenna is used. Install the antenna as high as possible and be sure to avoid running the wire through trees or near metal obstructions upon which it can rub. The antenna should also be installed at right angles to power lines, street car lines and any other electrical apparatus if possible. The receiver is designed to operate efficiently on foreign broadcasting stations and short wave bands with the conventional type aerial. For those who are especially interested in short wave reception, however, slightly less noise will be heard on the short wave bands if a noise eliminating antenna is used. The receiver will operate without a ground connection but it is advisable to use a good ground to insure quiet noise free reception. The ground wire should be connected to a water pipe or radiator or a pipe driven into the ground. When it is connected to the radiator or water pipe be sure that the paint is first scraped from the pipe so that a good metallic contact is obtained. The antenna and ground wires should be connected to the two terminals on the back of chassis marked A for antenna and G for ground.

It is extremely important that a good antenna and ground be used if the receiver is to operate properly. Connections should all be clean and tight, and periodically an inspection should be made to see whether the wires are corroded from the affects of the weather. It is not advisable to use an old antenna on a new set.

TUBES

Your radio set comes to you with the tubes already in the sockets. When it becomes necessary to replace the tubes, the type and position of each tube is shown in figure 1. A similar tube socket guide is also pasted in the cabinet. The base of the tubes have a guide pin so that they can not be inserted incorrectly. Be sure that you rotate the tube before attempting to insert it so that the guide pin drops into the center hole in the socket. Be sure that the tubes are pressed tightly in place and that the flexible wires with grid clips on the end are placed over the caps of the tubes which appear as shown in the illustration.

POWER LINE VOLTAGE

Your radio is designed to operate on 105 to 125 volts, 50-60 cycle a.c. supply only. A few sections of of the country use other voltage and cycles. If there is any doubt in your mind, do not plug the set in until you first determine the voltage and cycles from your power supply company.

Part No. 16805

HOW TO USE YOUR RADIO

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The sketch shown in figure 1 indicates the various tuning controls. Read carefully how to use each control so you can obtain the fullest benefit from your radio.

TURNING RADIO ON

Turn the on-off switch and volume control (see figure 1) to the right. As the switch is turned on, a click will be heard and the dial will light up. Wait approximately half a minute for the tubes to warm up. To turn the radio off the volume control knob should be turned back to the left until the dial light goes out.

TUNING IN STATIONS
(BROADCAST BANDS)

First turn the band indicator knob to the broadcasting band. This knob does not turn as easily as the others. Next turn the volume control to the right to a position of medium volume. The tuning control knob should then be turned until the station is heard.

WEATHER BAND

This band will receive the low frequency broadcasts of weather reports, airplane beacon signals, and ship to shore communications. The band is of particular interest to those interested in accurate weather reports.

TUNING EYE

The tuning eye is mounted at the top of the dial service to indicate when the station is correctly tuned. The tuning knob should be turned back and forth over the station until the dark portion of the eye is at the narrowest point. You will notice that as you tune off a station the dark portion of the eye rapidly broadens. The volume should never be adjusted by tuning slightly off the station. Instead, the best tuning point should always be found by using the tuning eye and volume reduced to the desired level by turning the volume control to the left.

SHORT WAVES

This receiver has three short wave tuning bands. The second band will receive police calls, aeroplanes and amateurs from all parts of the country. The third wave band will receive many foreign short wave broadcasting stations and also American short wave stations re-broadcasting chain programs. The fourth band or inside calibration known as the ultra high frequency band will receive Metropolitan police stations whose frequency assignments are in this band as well as experimental broadcasting stations. This band is by nature suited to short distance communication and will receive stations within a radius of twenty to thirty miles. The tuning and operation on the short wave bands is the same as for the broadcast band except that it is important that the tuning knob be turned very slow. Short wave stations are extremely sharp, particularly the foreign broadcasters because of the great distance, as a result they will be missed unless the receiver is tuned with extreme care. You will notice that the approximate location of the most important foreign broadcasters are shown on the dial.

ULTRA HIGH FREQUENCY BAND

On this band the listener will hear Police calls and special high frequency broadcasts. The range of reception is very limited as to distance, the average distance over which a signal may expect to be received is approximately 20 to 30 miles if localities are favorable.

Tuning on this band should be done very slowly and carefully. The reception will be much improved by using the "hi-fidelity" switch in the "hi-fidelity" position.

Maximum usefulness may be expected from this band in Metropolitan areas in which they are ultra high frequency programs being broadcast regularly.

WAVE BAND INDICATORS RADIO BEAM TUNING

There are two indicators by which the different bands are shown on your radio. The indicator at the bottom of the dial tells you which band is being used. In addition to make it still easier, the traveling light of the radio beam tuning which serves as a tuning pointer is automatically shifted from one band to the next as the wave band switch is turned.

BALANCE WHEEL TUNING

To aid in easy tuning of foreign stations which require an extremely fine balance of tuning mechanism

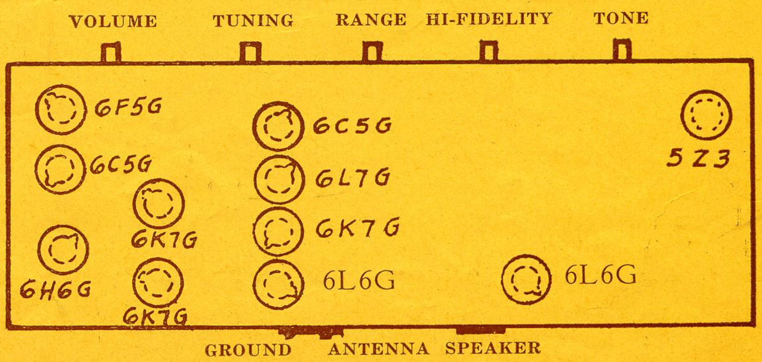


Fig. 1 Tuning Controls and Tube Position

a balance wheel is used. You will notice that the tuning control has a very soft feel that makes the tuning smooth and easy. The use of the balance wheel makes possible also speedy tuning of the broadcast band when traveling from one station to another. The knob can be spun with the fingers so the pointer will travel quickly from one station on the dial to another. When you use the spinning action, however, never spin the dial hard against the stops at each end of the tuning bands.

TONE CONTROL

When the station is tuned in, the tone control can be adjusted to any tone desired. By rotating the tone control knob to treble position, full brilliancy of the broadcast is obtained. Usually this position is desirable for speaking. The intermediate position and extreme bass are liked by many people for music.

HIGH FIDELITY SWITCH

The receiver is equipped with a "high fidelity" control which is used to provide an extension of tone range.

Normally, when tuning in a signal the switch is set at the counter-clockwise or normal position. After the station is properly tuned in the switch is turned to "Hi-Fidelity" or clockwise position. Operating in this way provides for better signal selection and tone quality.

The improvement in tone quality and range will be noticed more when listening to orchestral selections in which the tone range extends from 60 to 5000 cycles or more.

WEATHER CONDITIONS AFFECT RECEPTION

It is not always possible even on a new set to expect perfect reception. In many cases poor reception may be due to local interference or to weather conditions. We will briefly discuss some of the conditions that can affect reception.

STATIC

Static is usually due to local thunder storms which shows itself as a series of clicks and cracks. It is of course more prevalent during the summer months and in some localities may make reception of distant stations quite bad.

LOCAL INTERFERENCE

Local interference is sometimes troublesome in radio. It is found most frequently when the receiver is located close to a power line or street car wires. It can also be caused by x-ray machines, electric fans, dirty light socket contacts, vacuum cleaners, and electric refrigerators. Most electrical appliances when in good condition will not cause interference to your radio. However, when they begin to get old and contacts become loose or corroded, they will often cause loud cracking noises in your radio. Local interference can be reduced and sometimes can be eliminated by keeping the antenna and also the leadin away from electrical apparatus or by the use of a special noise eliminating antenna.

Where the trouble is very serious it may be advisable to call in your local service man to locate the source of the noise.

AUTOMATIC VOLUME CONTROL

Your receiver is equipped with an automatic volume control which tends to keep the station volume from fading. For this reason as the dial indicator is tuned from one station to another, static will increase substantially between stations. This only indicates that the automatic volume control is operating properly. Do not confuse it with local interference.

FADING

Fading will be noticed more particularly on distant stations. It consists of the station changing its volume from high to low. If the station is fading badly the automatic volume control may not be able to hold the volume constant. When this occurs a different station should be tuned in.

STATION INTERFERENCE

On the standard broadcast band, there are as many as six stations operating at one time on a single channel. Although these stations are located in different sections of the country, during good weather conditions they may over-lap one another so that several stations can be heard at the same time. This is especially noticeable on the high frequency end of the broadcast band. This interference often results in stations combining with one another to form a whistle, a high shrill squeal or a deep growl.

CARE REQUIRED FOR BEST OPERATION

There are no adjustments of any kind to be made on the chassis or speaker except those provided for professional service men. It is advisable, however, to occasionally remove the tubes and have them checked at a reputable radio shop. Tubes should be replaced at least once a year if the fullest performance of the receiver is expected.

REPLACING DIAL LAMPS

Five 6.3 volt dial lamps are used. Two lamps are clipped to the bottom of the dial, two to the top and one in the traveling indicator. To remove the pilot lamp from the traveling indicator, it should be first rotated slightly to one side of the dial. The light and socket can then be pulled out of its housing. The lights at top and bottom of the dial can be slipped off the clips for replacement.

AJUSTMENTS FOR SERVICE MEN ONLY

ALIGNMENT PROCEDURE

Correct alignment is of extreme importance in all-wave receivers. The receivers are properly aligned at the factory with precision equipment and realignment should not be attempted by the service technician until all other causes of faulty operation are corrected.

In order to properly realign the receiver the following equipment is necessary:

1. A signal generator which will provide an accurately calibrated signal at any frequency from 456 kilocycles to 18 megacycles. The generator should have adjustable signal output.
2. An output audio voltmeter of the low voltage type to be connected across the moving coil of the speaker. This should be capable of providing a readable deflection for relatively low output levels to avoid the effects of overload.
3. An insulated or non-metallic screw driver for the adjustment of trimmers.

I. F. ALIGNMENT 456 KC

1. Connect the output meter (low scale) across the loud speaker voice coil. Turn the wave band switch to extreme clockwise position (broadcast band). Turn the volume control to maximum position. Rotate the hi-fidelity switch to the counter-clockwise position and the volume control to the "treble" or clockwise position.
2. Connect the test oscillator ground to chassis and the "hot" lead from the oscillator to the grid of the 6L7 converter tube through a series .1 mfd. condenser. Set test oscillator to 456.0 KC.
3. Adjust I. F. alignment screw of 3rd I. F. assembly, at rear of chassis, to maximum output, reducing output of test oscillator to keep meter reading on scale as alignment proceeds.
4. Adjust I. F. alignment screws of 2nd I. F. transformer adjacent to 3rd I. F. transformer, for maximum output as described above.
5. Adjust alignment screws of 1st I. F. transformer, near front of chassis, for maximum output as described above.
6. Re-adjust alignment screws of all three transformers to make sure of accurate alignment. Always use lowest possible output of test oscillator to preclude the possibility of the automatic volume control action confusing correct alignment.

WAVE TRAP ADJUSTMENT

1. With test oscillator still set at 456.0 KC remove series condenser from grid of 6L7 converter tube and substitute a 200 mfd. condenser in its place.
2. Connect test oscillator lead to antenna post of receiver.
3. Keep variable condenser at maximum capacity position with wave band switch in broadcast position.
4. Raise output of test oscillator until a half scale meter deflection is obtained.
5. Adjust trimmer No. C-25 (located on chassis) until the meter reading is at the minimum deflection (toward zero).

BROADCAST BAND—535-1720 KC

1. Set test oscillator to 1600 KC. Connect oscillator to receive through a 200 mmfd. condenser.
2. Rotate wave band switch to full clockwise direction.
3. Set dial scale to 1600 KC, and adjust trimmer C-19 to a resonance.
4. Adjust trimmer C-18 for maximum response.
5. Adjust trimmer C-6 for maximum response.
6. Set test oscillator to 600 KC.
7. Set dial scale to 600 KC and adjust padding condenser C-13 for maximum response "rocking" gang condenser while adjustment is made, to obtain proper resonance.
8. Repeat the adjustments at 1600 KC to obtain greater accuracy.

WEATHER BAND—140-410 KC

1. Set test oscillator to 400 KC. Use 200 mmfd. condenser in series with oscillator lead.
2. Rotate wave band switch one position in counter-clockwise direction.
3. Set dial scale to 400 KC and adjust trimmer C-14 to a resonance.
4. Adjust trimmer C-19 to a mixmum response.
5. Adjust trimmer C-7 to a maximum response.
6. Set test oscillator to 160 KC.
7. Set dial scale to 160 KC and adjust padding condenser C-15 to maximum response, "rocking" gang condenser while adjustment is made, to obtain proper resonance.

POLICE BAND—1.7-5.8 Megacycles

1. Set test oscillator to 5.5 megacycles, (400 ohm resistor in series with oscillator lead).
2. Rotate wave band switch counter-clockwise one position.
3. Set dial scale to 5.5 megacycles, and adjust C-10 to a resonance. The resonance obtained with the trimmer in the low capacity direction, being the correct one.
4. Adjust trimmer C-17 to a maximum response, "rocking" gang condenser while adjustment is made, to obtain proper resonance.
5. Adjust trimmer C-5 to a maximum response, "rocking" gang condenser while adjustment is made, to obtain proper resonance.
6. Set test oscillator to 2.0 megacycles.
7. Set dial scale to 2.0 megacycles, and adjust padding condenser C-11 for maximum response, "rocking" gang condenser while adjustment is made, to obtain proper resonance.
8. Repeat the adjustments at 5.5 megacycles to obtain greater accuracy.

FOREIGN BAND—5.6-18.0 Megacycles

1. With test oscillator connected to the antenna and ground terminals through a 400 ohm resistor, set oscillator at 16.0 megacycles.
2. Rotate the wave band switch to the 4th position in the counter-clockwise position. Set dial scale to 16.0 megacycles.
3. Adjust oscillator trimmer C-8 to a resonance. There will possibly be two resonant points noticed. The one obtained with the trimmer out in the minimum capacity direction, is the correct one.
4. Adjust trimmer C-16 to maximum response, "rocking" the gang condenser back and forth a degree or two to obtain proper resonance.
5. Adjust trimmer C-4 to maximum response, "rocking" gang condenser while trimming to obtain proper resonance.
6. Set test oscillator to 6.0 megacycles.
7. Set dial scale to 6.0 megacycles, and adjust padding condenser C-9 until a maximum response is obtained, "rocking" the gang condenser while adjustment is made to obtain proper resonance.
8. Return to 16.0 megacycles and check adjustment of C-8, C-16, and C-4 to make certain that the adjustment of C-9 has not disturbed their adjustments.

ULTRA HIGH FREQUENCY BAND
16.5-42.0 Megacycles

The alignment of this band is fixed at the factory and does not have any adjustments to be made in the field.

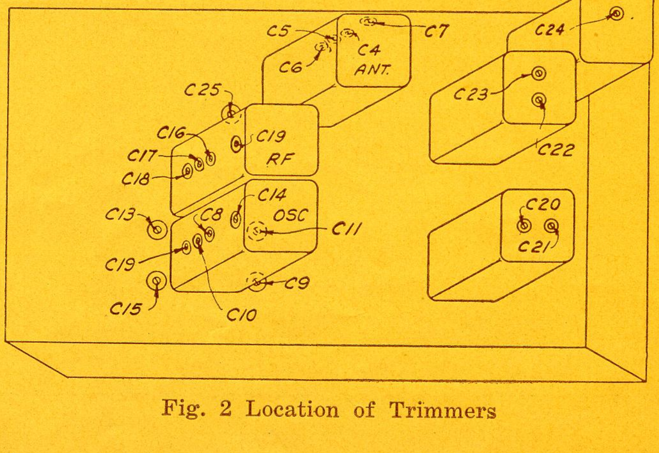
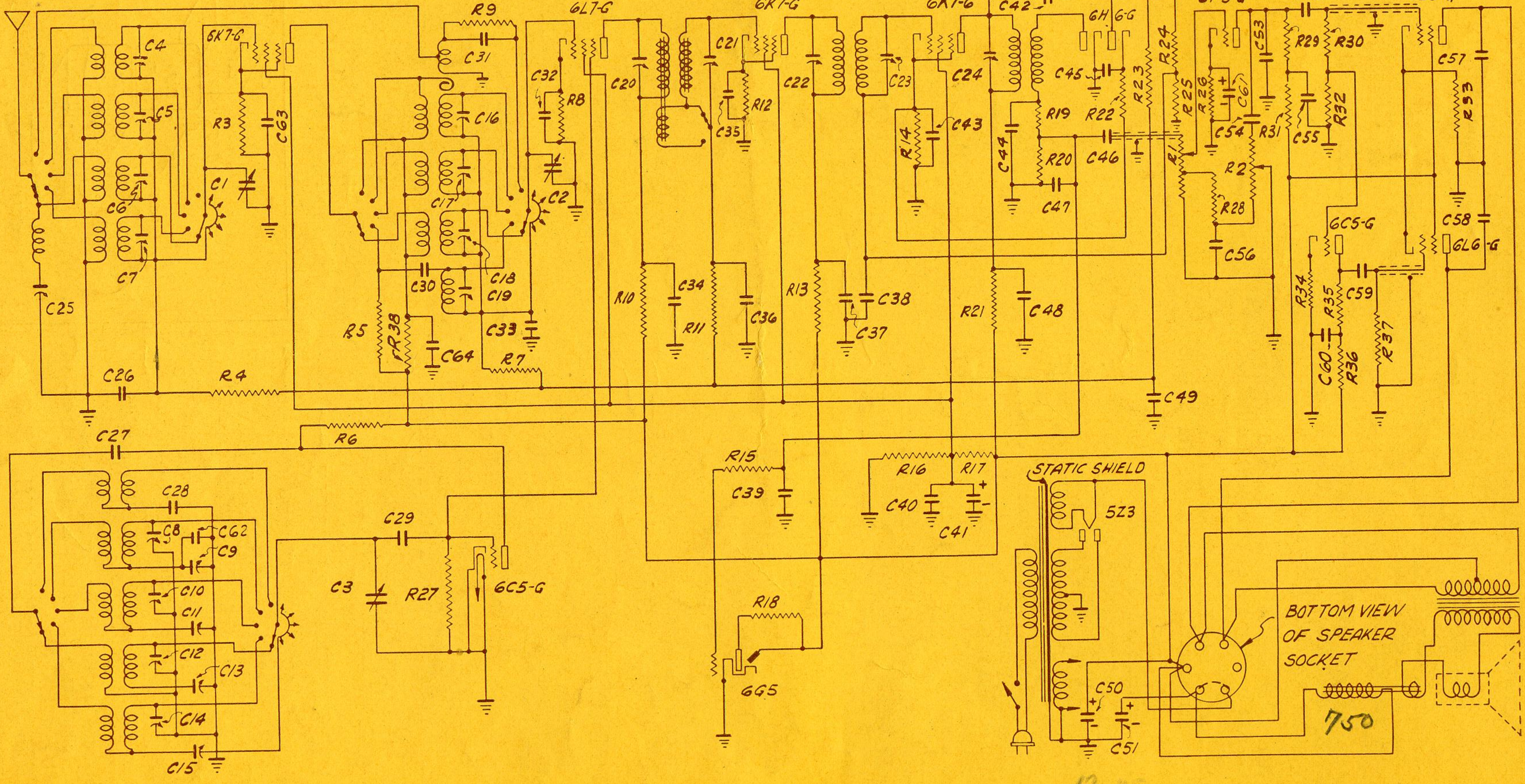


Fig. 2 Location of Trimmers

SCHEMATIC WIRING DIAGRAM



.12 mf

REPLACEMENT PARTS MODEL 1250

SCHEMATIC LOCATION	PART. NO.	DESCRIPTION	PRICE
	16885	Bulb Pilot Light (Edgelight)	$ .13
	16589	Bulb Pilot Light Frosted (Travelite)	.12
C1 C2 C3	C-16543-2	Condenser Variable Gang	2.55
C4 C5 C6	A-16552	Condenser Trimmer 3-30 MMF. (triple strip)	.23
C7 C14 C19	A-16667	Condenser Trimmer 8-80 MMF. (bakelite base)	.13
C16 C17 C18	A-16552	Condenser Trimmer 3-30 MMF. (triple strip)	.23
C8 C10 C12	A-16552	Condenser Trimmer 3-30 MMF. (triple strip)	.23
C13	B-16603	Condenser Padder 300-700 MMF.	.22
C9	B-16604	Condenser Padder 1000-3000 MMF.	.48
C11	B-16605	Condenser Padder 600-1800 MMF.	.33
C15	B-16606	Condenser Padder 100-300 MMF.	.18
C7 C14 C19	A-16667	Condenser Trimmer (bakelite base)	.13
C25	B-16786	Condenser Padder 20-55 MMF.	.20
C20 C21		Condenser Trimmer—part of 1st I. F. assembly	
C22 C23		Condenser Trimmer—part of 2nd I. F. assembly	
C24		Condenser Trimmer—part of 3rd I. F. assembly	
C50 C51	B-16613-2	Condenser Dry Electrolytic Dual 12 MFD. 350 V.	1.40
C41 C61	B-16614-3	Condenser Tubular Dry Electrolytic Dual 8-10 MFD. 200-12 V	.75
C44 C47	15918	Condenser Mica 100 MMFD. 20% Type O	.07
C29	15919	Condenser Mica 50 MMFD. 10% Type O	.08
C53	15928	Condenser Mica 250 MMFD. 20% Type O	.08
C42	15929	Condenser Mica 50 MMFD. 20% Type O	.07
C62	15932	Condenser Mica 1750 MMFD. 5% Type W	.17
C54	15933	Condenser Mica 4000 MMFD. 20% Type W	.22
C28 C31	15935	Condenser Mica 650 MMFD. 20% Type W	.09
C30	15938	Condenser Mica 10 MMFD. 20% Type G	.09
C26 C33 C49 C63 C32 C35 C43 C45 C38 C36	15752	Condenser Tubular .05 MFD. 200 Volts	.09
C46 C57 C58	15753	Condenser Tubular .002 MFD. 600 volts	.08
C34 C64	15756	Condenser Tubular .05 MFD. 400 volts	.09
C40 C48 C37	15757	Condenser Tubular .1 MFD. 400 volts	.11
C55 C60 C52 C59	15760	Condenser Tubular .02 MFD. 400 volts	.08
C39	15763	Condenser Tubular .01 MFD. 200 volts	.07
C56	15772	Condenser Tubular .02 MFD. 200 volts	.08
C27	15774	Condenser Tubular .002 MFD. 400 volts	.08
R1	B-16565-2	Control Volume with 110 switch	.75
R2	B-16566-2	Control Tone	.50
	A-16541-2	Control High Fidelity	.28
	16890	Coil antenna in shield	3.00
	16891	Coil Detector in shield	3.15
	16892	Coil Oscillator in shield	2.75
	16893	Dial Glass and Pyralin Backing	1.05
	16717	Drive and Indiactor assembly	4.55
	B-16618	Escutcheon No. 4	1.25
	A-16596	Knob (tune and high fidelity)	.18
	A-16598	Knob (volume and tone)	.11
	A-16599	Knob (band switch)	.15
R28 R19	15510	Resistor Carbon 20,000 +—20% ¼ watt	.05
R35 R5	15511	Resistor Carbon 50,000 +—20% ¼ watt	.05
R25 R29	15512	Resistor Carbon 250,000 +—20% ¼ watt	.05
R16	15560	Resistor Carbon 25,000 +—10% ½ watt	.05
R7 R4 R31 R36 R11	15515	Resistor Carbon 100,000 +—20% ¼ watt	.05
R23 R15	15517	Resistor Carbon 1 meg. +—20% ¼ watt	.05
R9 R20 R24	15520	Resistor Carbon 500,000 +—20% ¼ watt	.05
R22	15531	Resistor Carbon 10,000 +—20% ¼ watt	.06
R3 R8	15533	Resistor Carbon 600 +—10% ¼ watt	.05
R27	15552	Resistor Carbon 30,000 +—20% ¼ watt	.05
R32	15557	Resistor Carbon 20,000 +—10% ¼ watt	.05
R6	15514	Resistor Carbon 25,000 +—20% ½ watt	.05
R30	15561	Resistor Carbon 150,000 +—10% ¼ watt	.05
R10 R13 R21 R38	15564	Resistor Carbon 1,500 +—20% ¼ watt	.05
R26	15565	Resistor Carbon 4,000 +—10% ¼ watt	.05
R37	15605	Resistor Carbon 100,000 +—10% ¼ watt	.05
R34	15611	Resistor Carbon 3,000 +—10% ¼ watt	.05
R17	15618	Resistor Carbon 20,000 +—10% 2 watt	.16
R12 R14	15566	Resistor Carbon 2000 +—10% ¼ watt	.05
R33	A-16785	Resistor Candohm 220 ohm 3 watt	.28
	15066	Socket 6K7	.11
	15083	Socket 6C5	.11
	15085	Socket 6F5	.11
	15087	Socket 6L7	.11
	15086	Socket 6H6	.11
	15181	Socket 5Z3	.07
	15248	Socket Speaker	.09
	16720	Socket 6L6	.11
	B-16637	Socket 6G5 with leads	.45
	A-16881	Socket Pilot Light (Edgelight) R. H.	.07
	A-16883	Socket Pilot Light (Edgelight) L. H.	.07
	16783	Socket Pilot Light (Travelite)	.11
	C-16581	Speaker 15"	15.00 ✓
	B-16610	Transformer, 1st I. F.	2.10
	B-16611	Transformer 2nd I. F.	.85
	B-16612	Transformer 3rd I. F.	.80
	C-16578-4	Transformer Power 110 V. 50-60 cycle	4.00
	A-16701	Trap Wave	.60
	A-1954	Washer Felt (large)	.01
	A-1955	Washer Felt (small)	.01

VOLTAGE CHART

Position	Tube	Ef	Ek	Eg Screen	Eg Suppressor	Ep Triode	Ep Pentode
R. F. Amplifier	6 K7G	6.3	3.5	85.0	Tied to Cathode		278.0
1st I. F. Amplifier	6 K7G	6.3	5.0	85.0	Tied to Cathode		275.0
Converter	6 L7G	6.3	3.5				275.0
Oscillator	6 C5G	6.3				100.0	
2nd I. F. Amplifier	6 K7G	6.3	5.0	85.0	Tied to Cathode		275.0
Detector A.V.C.	6 H6G	6.3	2.5				
1st Audio	6 F5G	6.3	1.5			200.0	
Phase Inverter	6 C5G	6.3	3.5			75.0	
Audio Output	6 L6G	6.3	22.0	280.0			275.0
Audio Output	6 L6G	6.3	22.0	280.0			275.0
Rectifier	5 Z3	5.0					